Impact of Pharmaceutical Supply Chain Factors Effectiveness on Drug Availability in Public Hospitals

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Abstract

This study aimed to investigate the impact of pharmaceutical supply chain factors effectiveness on drugs availability in public hospital. Descriptive analysis approach was used on the bases of the study problem and objectives. Self-Administrative set of questionnaire was designed and assess based on the study problem and purposes, and distributed to the study sample, which consist of all employees of concern departments such as purchasing, storage, and pharmaceutical stores in public hospitals in Amman capital with on overall of (163) employees. The study result a number of results and the most is: There is statistical a significant impact at the level of (α = 0.05) of pharmaceutical supply chain factors and its dimensions (demand uncertainty , prolong lead time , inventory level, risk level, Legislative & regulation issues) on drug availability in public hospitals. A number of recommendation were given and the most: There is a need for analyzing the influences factors concerning supply chain process and its procedures for ensuring the availability of needed drugs for public hospital in a quick action without any delay by less risk to avoid any encountered obstacles influencing purchasing mechanism. Moreover, revising the legal procedures used to ensure drugs availability in a flexible manner for public hospital.

Keyword: Supply Chain, Drug Availability, Public Hospitals.

1. Introduction

The supply chain management (SCM) indicates the relationships between suppliers & end users in the chain in order to solve functional problems that may occur between organizations (Pinna et al., 2015).Health care supply chain can be represented by the flow of pharmaceutical products from the suppliers with raw ingredients to the manufacturers of pharmaceuticals by different healthcare provider (hospitals, medical clinics, pharmacy,…etc) & ending by customer receiving this health care services which always that customer is the client or patient (Enyinda et al., 2014).

Supply chain administration in wellbeing framework were characterized as the "forms of the lifecycle that things transfer through producer to the point of utilize & installment, a supply chain comprises of physical, instructive, budgetary& learned streams whose reason is to fulfill end-user necessities with item &benefit from different connected supplies" (College Of Maryland, 2008), (Eluti et al., 2013,p 128). The supply chain "(SC is a handle that incorporates all the exercises from the recognizable proof of a client require through item determination, transaction with providers, installment, capacity, conveyance and redistribution (Meijboom et al., 2010).

According to the Ministry of Health in Jordan administration interviews, shows that the system of supplying medicines and medical supplies to hospitals of the Ministry of Health in Jordan facing a number of problems and the most is bureaucracy process and centralization. Based on that this study was focused on the impact of supply chain to investigate the factors and reasons that influence the process of pharmaceutical supply chain management on the availability of drugs in public hospitals in Amman Capital. This study focused on a number of factors that the researchers believe that these are a major factors were as: demand uncertainty, legislative & regulation issues, risk level, inventory level, and prolong lead time on the availability of drugs in the public hospitals.

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The shortage of medication at public hospital will reflect on the increasing demand ,this fluctuation on drug demand on certain medication will be either seasonal , pandemic attack may lead to over use of certain medication these factor can cause medication shortage at public hospitals. Based on that, the researchers desire and interest to investigate the factors that influence the pharmaceutical supply chain factors effectiveness on drugs availability of public hospitals.

2. Study Problems

Hospitals and health Care and procurement do not necessarily coincide with medical needs, and pharmacists have little access to them. Hospitals always seek to provide patients with the convenience of providing medicines and medical supplies to patients through the establishment of good supply chains.

This study problem seek to investigate the impact of pharmaceutical supply chain factors effectiveness on drug availability in public hospitals in Amman- Jordan to help supply chain management of improving the supply process in conjunction with other parties in concern and to ensure effective practices of drugs availability by public hospitals to secure patient medications and safety. The purpose of this study is to achieve its objectives by answering the following main question:

1. Is there any impact of pharmaceutical supply chain factors effectiveness (demand uncertainty, legislative & rules issues, risk level, inventory level, prolong lead-time) on drug availability in public hospitals in Jordan?

The researcher distracts a number of sub- questions were as:

1.1. Is there any impact of pharmaceutical supply chain effectiveness of demand uncertainty on drug availability in public hospitals?
1.2. Is there any impact of pharmaceutical supply chain effectiveness of legislative and rules issues on drug availability in public hospitals?
1.3. Is there any impact of pharmaceutical supply chain effectiveness of risk level on drug availability in public hospitals?
1.4. Is there any impact of pharmaceutical supply chain effectiveness of inventory level on drug availability in public hospitals?
1.5. Is there any impact of pharmaceutical supply chain effectiveness of prolong lead time on drug availability in public hospitals?

3. Significance of the Study

To enrich the knowledge of supply chain management in the fields of scientific research related to supply chain management literature reviews and its relationship in particular in pharmaceutical products to ensure the availability of drugs and decisions makers in public hospitals in Amman and others by the study results and recommendations mainly the factors that influence the supply chain on the availability of drugs by identifying the factors affecting the availability of medicines and to set up a visible solution's for ensuring the availability of drugs needed by public hospitals on time to serve their patients on a proper ways without any delays and risks by a reasonable and effective process to be adopted by supply chain management of public hospitals in Jordan.

4. Study Hypothesis

Based on the study problem, the researchers design a number of hypotheses to test the impact of pharmaceutical supply chain management on drug availability in public hospitals. The main hypotheses of the study:

Ho1: No significant impact of pharmaceutical supply chain factors effectiveness (demand uncertainty, legislative & rules issues, risk level, inventory level, prolong lead-time) on drug availability in public hospitals.

The researcher deducts a sub hypothesis out of the main hypothesis were as:

Ho1-1: No significant impact of demand uncertainty on drug availability in public hospitals at the level of (α = 0.05).
Ho1-2: No significant impact of legislative and rules issues on drug availability in public hospitals at the level of (α = 0.05).
Ho1-3: No significant impact of risk level on drug availability in public hospitals at the level of (α = 0.05).
Ho1-4: No significant impact of inventory level on drug availability in public hospitals at the level of (α = 0.05).
Ho1-5: No statistically significant impact of prolong lead-time on drug availability in public hospitals at the level of (α = 0.05).

5. Study Model

Based on the study problem and variables, the researchers developed the study model on the bases of previous studies which related to the current study as:(Pinne et al., 2015), (Abdollahiasl et al., 2014), (DengFeng Wu and Hongyi Mao, 2017), (Awad et al., 2016), (Sadjada et al., 2016), (Yang et al., 2014),(Deng Feng Wu and HongyiMao, 2017),(H.Awad et al., 2016).
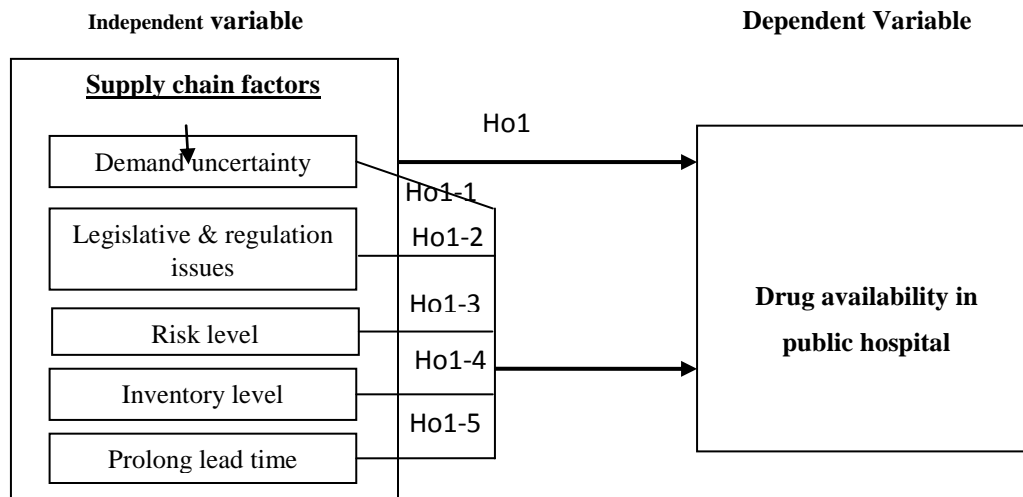

Independent variable

Supply chain factors

Demand uncertainty

Legislative & regulation issues

Risk level

Inventory level

Prolong lead time

Ho1, Ho1-1, Ho1-2, Ho1-3, Ho1-4, Ho1-5

Dependent Variable

Drug availability in public hospital

Figure (1): Research Model

6. Literature Review:

The supply chain procedures are described as "a structured and measured set of things to do planned to produce a specific output for a specific consumer or market" (Davenport, 2013 and Devi Parmata 2016). (D.ELUTI et al., 2013,p 128). The supply chain management (SCM) indicate the upstream & downstream relationships between suppliers & end users in the chain in order to solving functional problems that may occur between organizations (R.Pinna et al., 2015).

The main task of supply chain management is to coordinate the product and information flows among supplier, Manufacturers, distributors, retailers, and customers (Kumar and Pugazhendhi, 2012). Because today's competition becomes between supply chains and not between companies, it important to effectively integrate all activities among supply chain parties to make a successful supply chain management. Effective supply chain integration increase the supply chain efficiency and improve its performance which in result leads to enhancing the firm's competitive advantage (Frohlich & Westbrook, 2001;Danese & Bortolotti, 2014; Macke prang et al., 2014; Cao et al., 2015;Ralston et al., 2015;Wang et al.,2016).

Health care supply chain can be represented by the flow of pharmaceutical products from the suppliers with raw ingredients to the manufacturers of pharmaceuticals to the different healthcare provider(hospitals, medical clinics, pharmacy,…etc) & ending by customer receiving this health care services always this customer is the client or patient (Enyinda et al., 2014). The drivers of Pharmaceutical Supply Chain (PSC) are environmental, economic and safety considerations and the possibility being that practices will improve performance throughout the supply chain. By establishing PSC ,organizational reputation, reduced cost, improved organizational efficiency, increased market share, getting ahead of competitors, access to new markets, and increased employee motivation are enhanced (Ying Xie, Liz Breen 2012).

7. Previous Studies

Narayana, S., Pati, R., &Vrat, P. (2014), find out the relationship between supply chain factors and health care. The study concluded that the needs of the purchasers must be reached at an ideal cost.Priyan, S., & Uthayakumar, R. (2014), find out the relationship between supply chain factors and inventory. Pharmaceutical plays a vital part within the healthcare businesses due to the noteworthy costs of the items and their capacity and control necessities.

Wu, D., & Mao, H. (2017),find out the relationship between supply chain factors and healthcare Change of medicate acquirement is being broadly actualized and extended in China, particularly in today's enormous information environment. Nevertheless, the design of supply mode development slacks behind acquirement enhancement. Enyinda, C., Mbah, C., &Ogbuehi, A. (2010), find out the Pharmaceutical chain that may be a noteworthy component of the wellbeing framework in providing medicines, particularly in nations where primary drugs are given by nearby pharmaceutical companies. No past studies exist evaluating dangers and disturbances in pharmaceutical companies whereas evaluating the pharmaceutical supply chain. Any dangers influencing the pharmaceutical companies might disturb supply drugs and wellbeing framework productivity.

8. Method and procedures

The methodology of the study followed and presents the study society and its sample in addition to the study tool and its procedures and the mechanism of verifying its validity and stability. It also deals with the statistical tools used in analyzing the data to reach the results.

8.1. Study Approach

The current study followed the descriptive approach and the analytical method which is based on the characterization of the phenomenon and describing the nature and quality of the relationship between the variables and causes and trends and aspects of the revolving around a problem or a phenomenon and identify the reality in reality, a methodology used extensively in human research and studies and is based on the interpretation of the status quo And identify the conditions and relationships between the variables. The descriptive analytical approach is used in the study as follows: Description of the study variables (supply chain factors, lack of medicines) in government hospitals.Analytical approach to analyze the impact of pharmaceutical supply chain factors on drugs availability in public hospitals.

8.2. Study Population

The study population consists of the employees of the pharmacy department, the purchasing department, the warehouses (pharmacists, head of department, managers)in the hospital of the University of Jordan and Prince Hamza Hospital (158) employees. The researchers used the comprehensive survey method to select the sample of the study. 160 questionnaires were distributed to the heads of the departments and pharmacists at 100% of the total number of the study society and 158 questions were retrieved. Thus, the number of questionnaires subject to statistical analysis (158). The table also shows the distribution of the sample members according to the demographic and functional variables.

8.3.Study Variables Reliability and Constancy

To ensure the validity of the study tool to measure the variables of the study, the researcher carried out several procedures. His test is used to verify the reliability of the study instrument so that it has the validity and validity of the test. The internal consistency test (Cronbach's Alpha) is used to measure the consistency of the responses of the sample of the study to all paragraphs of the tool, (Sekaran&Bougie, 2016). The following table illustrates the test results.

Table (1):Kronbach alpha coefficients for study dimensions

No.	Number of paragraphs	dimensions	Kronbach alpha coefficients
1	7	Demand uncertainty	.789.
2	6	Legislative & regulation issues	.813
3	6	Risk level	.758
4	6	Inventory level	.877
5	6	Prolong lead-time	.920
6	**31**	**Supply chain factors as a whole**	**.925**
7	**9**	**Drug availability**	**.926**

Table (1) shows that the Cronbach alpha coefficients for the variables of the independent variable were ranged between 0.758-0.920 while the variable in the supply chain as a whole (0.925) and the dependent variable (0.926) all greater than 0.70 indicating the validity of the tool to achieve the study objectives.

8.4. Statistical Methods Used

The Statistical Package for Social Sciences (SPSS) was used for data analyses, the following methods were used:Kronbach Alpha test: to measure the reliability of the tool and its internal consistency, Coefficient of Variance and Allowable Variation: To ensure that there is no linear interference between the sub variables of the independent variable, there is no high correlation between them, Normality Test: To ensure that the data follow the normal distribution, Multi Regression Analysis (Multi- Anova): to test the impact of the overall independent variables on dependent variable and Simple Regression Analysis (One – way Anova): to test sub-hypotheses of the impact of each independent variable on dependent variable.

8.5. Study Results

Table (2): Coefficient of Amplification of Variance and Permissible Variation of the Overall factors of the "Supply Chain"

model	Collinearity statistics	
	Tolerance	VIF
Demand uncertainty	.348	2.873
Inventory level	.306	3.267
Lead time	.297	3.366
Legislative & regulation issues	.468	2.137
Risk level	.958	1.044

Table (2) present the values of the inflation factor (VIF) ranged from (1.044-3.366), all less than (10) indicating that there is no linear interference between the variables of the independent variable. Tolerance values ranged from (.297) 0.958), all greater than 0.05, indicating that there is no high correlation between independent study variable.

8.6. Hypotheses Tests

The Main Hypothesis:No impact of the supply chain in its factors (demand uncertainty, inventory level, lead-time, Legislative& regulation issues, and risk level) on drug availability of public hospital.at the level of ($\alpha = 0.05$).

Table (3): Model Summary for Main Hypothesis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.795a	.632	.620	.56696

Table (3) present the results of correlation coefficient (R) between the independent variables and the dependent variable is (0.795) indicating a strong relationship. The table shows that the value of (R2) is the coefficient of determination (0.632), meaning that the independent variables were able to explain 79.5 of the reasons for the absence of medicines and the rest due to other reasons. It is also noted that the value of the adjusted coefficient of adjustment was (0.620) and the difference between them and the value of R2 is very simple (0.012) indicating the ability of the variables accepted in the model to predict the values of the dependent variable.

Table (4): Anova for Main Hypothesis

Model	Sum of Squares	df.	Mean Square	F	Sig.
Regression	84.079	5	16.816	52.314	.000a
Residual	48.859	152	.321		
Total	132.938	157			

Table (4) present the results of ANOVA test, the calculated value of F is (52.314) at the mean level of (0.000), thus rejecting the null hypothesis and accepting the alternative hypothesis as "there is a statistically significant effect at the level of significance ($\alpha = 0.05$) of the supply chain on its variables (demand uncertainty, inventory level, lead time, Legislative & regulation issues, risk level,) on drug availability at public hospital.

Table (5): Coefficient of the First Sub- Hypothesis

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	-.082	.457		-.178	.859
Demand uncertainty	.042	.102	.034	.411	.682
Inventory Level	-.026	.089	-.026	-.296	.768
Lead Time	.268	.079	.305	3.382	.001
Legislative & regulation issues	.685	.089	.556	7.739	.000
RiskLevel	.024	.074	.016	.321	.748

a. Dependent Variable: drug availability

Table (5) present the values of the impact of each variable of the independent variable; the dimensions (Legislative & regulation issues, Prolong lead-time) have a statistically significant positive effect on the availability of medicines. The value of (t) (3,382, 7, 739,)   (0.000, 0.001,) is below the significance level (0.05), while there is no effect of the variables (demand uncertainty, Inventory level, Risk level) alone on the availability of medicines. Therefore, the prediction equation is as follows:

Drug availability = -.082*+.042 *1+-.026*2+.268*3+.685*4+.024*5

First sub- Hypothesis: No statistically significant impact at the level of significance ($\alpha = 0.05$) of demand uncertainty on drug availability at public hospital.

Table (6): Model Summary for the First Sub- Hypothesis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.622[a]	.387	.383	.72299

Table (6) present the correlation coefficient (R) between the independent variable and the dependent variable is (0.622) indicating a very strong and acceptable relationship. The table shows that the value of R2 is (387) which equivalent to (387%) of the changes taking place, drug availability and the rest due to other reasons. The value of the modified limiting factor is (0383), and the difference between them and the value of R2 is very simple (0.04) indicating the ability of the variable accepted in the model to predict the values of the variable affiliate.

Table (7): ANOVAfor First Sub- Hypothesis

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	51.393	1	51.393		
Residual	81.544	156	.523	98.319	.000a
Total	132.938	157			

Table (7) present the results of ANOVA test, the calculated value of F is (98.319) at the mean level of (0.000). Thus, the null hypothesis is rejected and the alternative hypothesis is accepted. "There is a statistically significant effect at the level of significance ($\alpha = 0.05$) for demand uncertainty on drug availability.

Table (8): Coefficient of the First Sub- Hypothesis

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.015	.305		3.327	.001
Demand uncertainty	.759	.077	.622	9.916	.000

Table (8) presentthat the test of (T) has a statistically significant positive effect on the quality of work, with a value of (t) of (9.319), which is higher than its value of (1.96) and a level of significance (0.000) less than Level of significance (0.05).

Second Sub- Hypothesis: No impact of the inventory level on drug availability at public hospital.

Table (9): Model Summary of the Second Sub- Hypothesis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.597a	.356	.352	.74064

Table (9) preset the results of correlation coefficient (R) between the independent variable and the dependent variable is (0.597) indicating a very strong and acceptable relationship. The table shows that the value of R2 is (356), (35.6%) of the changes taking place, drug availability and the rest due to other reasons. The value of the modified limiting factor is (0352) and the difference between them and the value of R2 is very simple (0.04) indicating the ability of the variable accepted in the model to predict the values of the variable affiliate.

Table (10): ANOVA Test of the Second Sub- Hypothesis

Model	Sum of Squares	df.	Mean Square	F	Sig.
Regression	47.365	1	47.365		
Residual	85.573	156	.549	86.346	.000a
Total	132.938	157			

Table (10) present the results of ANOVA test, the calculated value of F is (86.346) at the mean level of (0.000). Thus, the null hypothesis is rejected and the alternative hypothesis is accepted. "There is a statistically significant effect at the level of significance (α = 0.05) for inventory level on drug availability.

Table (11): Coefficients Test of the Second Sub-Hypothesis

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.637	.260		6.306	.000
	Inventory level	.600	.065	.597	9.292	.000

Table (11) shows that the results of (T) has a statistically significant positive effect on the quality of work, with a value of (t) of (9.296), which is higher than its value of (1.96) and a level of significance (0.000) less than Level of significance (0.05).

Third Sub- Hypothesis: No impact of the lead-time on drug availability at public hospital.

Table (12): Model Summary of the Third Sub- Hypothesis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.673a	.453	.449	.68295

Table (12) present the correlation coefficient (R) between the independent variable and the dependent variable is (0.673) indicating a very strong and acceptable relationship. The table shows that the value of R2 is (453), (45.3%) of the changes taking place, drug availability and the rest due to other reasons. The value of the modified limiting factor is (0449) and the difference between them and the value of R2 is very simple (0.04) indicating the ability of the variable accepted in the model to predict the values of the variable affiliate.

Table (13): ANOVATest of the Third Sub- Hypothesis

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	60.176	1	60.176		
Residual	72.761	156	.466	129.017	.000a
Total	132.938	157			

Table (13) present the ANOVA test, the calculated value of F is (129.017) at the mean level of (0.000). Thus, the null hypothesis is rejected and the alternative hypothesis is accepted. "There is a statistically significant effect at the level of significance ($\alpha = 0.05$) for lead time on drug availability.

Table (14): Coefficients Test of the Third Sub- Hypothesis

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.710	.208		8.235	.000
	Lead time	.591	.052	.673	11.359	.000

Table (14) present the (T) has a statistically significant positive effect on the quality of work, with a value of (t) of (11.359), which is higher than its value of (1.96) and a level of significance (0.000) less than Level of significance (0.05).

Fourth Sub- Hypothesis: No impact of the Legislative& regulation issues, on drug availability at public hospital.

Table (15): Model Summary of the Forth Sub- Hypothesis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.760[a]	.578	.575	.59962

Table (15) present the correlation coefficient (R) between the independent variable and the dependent variable is (0.760) indicating a very strong and acceptable relationship. The table shows that the value of R2 is (.578), (57.8%) of the changes taking place, drug availability and the rest due to other reasons. The value of the modified limiting factor is (0575) and the difference between them and the value of R2 is very simple (0.03) indicating the ability of the variable accepted in the model to predict the values of the variable affiliate.

Table (16): ANOVATest of the Forth Sub- Hypothesis

Model	Sum of Squares	df.	Mean Square	F	Sig.
Regression	76.848	1	76.848		
Residual	56.089	156	.360	213.738	.000[a]
Total	132.938	157			

Table (16) present the ANOVA test, the calculated value of F is (213.738) at the mean level of (0.000). Thus, the null hypothesis is rejected and the alternative hypothesis is accepted. "There is a statistically significant effect at the level of significance ($\alpha = 0.05$) for, Legislative & regulation issues on drug availability.

Table (17): Coefficients[a] for Forth Hypothesis

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.060	.273		.221	.825
	Legislative & regulation issues	.937	.064	.760	14.620	.000

Table (17) present the (T) has a statistically significant positive effect on the quality of work, with a value of (t) of (14.620), which is higher than its value of (1.96) and a level of significance (0.000) less than Level of significance (0.05).

Fifth Sub- Hypothesis: No impact of the risk level on drug availability at public hospital.

Table (18): Model Summary of the Fifth Sub- Hypothesis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.081[a]	.007	.000	.92009

Table (18) present the correlation coefficient (R) between the independent variable and the dependent variable is (0.081) indicating a very strong and acceptable relationship.

The table shows that the value of R2 is (.007), (.007%) of the changes taking place, drug availability and the rest due to other reasons. The value of the modified limiting factor is (0.000) and the difference between them and the value of R2 is very simple (0.007) indicating the ability of the variable accepted in the model to predict the values of the variable affiliate.

Table (19): ANOVA Test of the Fifth Sub- Hypothesis

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.874	1	.874		
Residual	132.064	156	.847	1.032	.311[a]
Total	132.938	157			

Table (19) present the ANOVA test, the calculated value of F is (1.032) at the mean level of (0.311). Thus, the null hypothesis is rejected and the alternative hypothesis is accepted. "There is a statistically significant effect at the level of significance ($\alpha = 0.05$) for risk level on drug availability.

Table (20): Coefficients[a] Test of the Fifth Sub-Hypothesis

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	4.505	.515		8.748	.000
Risk level	-.120	.118	-.081	-1.016	.311

Table (20) present the (T) has a statistically significant positive effect on the quality of work, with a value of (t) of (-1.016), which is Lower than its value of (1.96) and a level of significance (0.000) less than Level of significance (0.05) .

9. Study Results

1. The results of the study showed a statistical significant impact at the level of ($\alpha = 0.05$) of the risk level، on drug availability in public hospital. The result of this study was agreed with a study of (Enyinda, C., Mbah, C., & Ogbuehi, A., 2010) that found an impact of the supply chain in improving the availability of medicines.

2. The results of the study showed a statistical significant impact at the level ($\alpha = 0.05$) of the demand uncertainty on drug availability in public hospital, which means that supply chain management should be aware of demand uncertainties concerning the sources of drugs to ensure the availability of drugs on time.

3. The results of the study showed a statistically significant impact at the level ($\alpha = 0.05$) of the, Legislative & regulation is, on drug availability in public hospitals.

4. The results of the study showed a statistically significant impact at the level ($\alpha = 0.05$) of the, prolong lead times, on drug availability in public hospitals.

5. The results of the study showed a statistically significant impact at the level ($\alpha = 0.05$) of the، inventory level، on drug availability in public hospitals.

10. Study Findings

The researchers attributes of finding to public hospitals management for the importance of supply chain in respect to the factors concerning the process used and its impact on the availability of drugs, and keep supply chain management aware of type of risks which influence negatively supply system of and then the availability of drugs needed by hospitals to avoid shortages by adopting a scientific methods of preventing supply chain risks through an overall revision of all parties process in order to settle any encountered and future problems. In addition, public hospitals should take into considerations other variables concerning supply chain management as far as legislative and regulation used by government and the process of drugs orders which take time which considered as caused of delay, and the inventory level which be calculated properly of each type of drugs that public hospital is using for their patients.

Moreover, the uncertainty of drugs demand which somehow considered as a type of risks while the supply chain management does 'take into account the possible internal and external factors could influence the process of drugs supplies to ensure the availability of drugs into hospitals stores.

This finding was consisted with the outcome of (Narayana, S., Pati, R., &Vrat, P. (2014), which found an average level of supply chain management on public hospitals and health care (Wu, D., &Mao, H. (2017), which found an average level of supply chain factors to develop and develop pharmaceutical care.

11. Recommendations

Based on study results, the researchers recommend a number of recommendations to study problems in particular the supply chain management of the public hospital management were as:

1. Supply chain management of public hospitals required to create a databases on their department in order to conduct data regarding the supply factors which influence the performance of supply chain system were used by hospitals to prevent demand and supply uncertainties which affects negatively the process of formulating drugs demand to meet the need of patients to ensure patients life safety.

2. Supply chain management required to adopt an effective instruments for the purpose of monitoring drugs inventory to keep hospitals operating of serving their patients properly, and to secure drugs out of disbursement, which made it a difficult to of predicting and estimating the volume of drugs quantities required to recover patient's needs.

3. Supply chain management required to establish a specific schedule for the identification of pharmaceutical orders within the hospital divisions in order to proceed the fulfillments of other required officials procedures to avoid delays and other risks concerning drugs orders within a timetable in coordination with other departments.

4. Supply chain management required to modifying the laws and regulations concerning the availability of drugs on time by revising these laws and regulations which influence the performance of supply chain purchasing process to meet in a mediate delivery of drugs to the hospitals to recover patients medicines needed by giving purchasing autonomy or authorize to purchase its drugs in a directly by the hospital to meet its urgent and necessary needs.

5. Supply chain management required to pre-coordination between the hospital's medical units and the hospital administration regarding the identification of the drugs quantity and quality required to prevent any mistakes concerning drugs descriptions and specifications.

6. The researchers recommend other researchers in this field of study to investigate on other factors influencing the supply chain management process as a major department and functions of any organization.

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